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ABSTRACT

The efficacy of a multiple treatment smoking cessation program and three maintenance strategies was evaluated. Phases I and II of the study involved 51 subjects who participated in a five-day smoking cessation project consisting of lectures, demonstrations, practice exercises, negative smoking, and the teaching of self-control procedures. At the program's termination Phase III commenced and all subjects were randomly assigned to one of three maintenance conditions: (1) a four-week support group which offered an opportunity to discuss feelings and thoughts; (2) a four-week telephone contact system which enabled group members to call one another; and (3) a no contact control group. Extensive follow-up data were collected at the end of treatment and at two months, while only abstinence data were gathered at four months and at six months post-treatment. In addition, recidivists were required to complete a "Return to Smoking Questionnaire." Results indicated that the treatment program was extremely effective: 100% of the subjects were abstinent at the end of treatment and 76.5% were abstinent six months post-treatment. Recidivists reported a smoking rate that was 52% of baseline at the six month time period. There were no significant differences among the three maintenance conditions. (Author)

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The Effect of a Multiple Treatment Program and Maintenance Procedures on Smoking Cessation

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American Health Foundation

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The Effect of a Multiple Treatment Program and Maintenance Procedures on Smoking Cessation

There has been a plethora of smoking cessation studies in the past fifteen years. Several possible explanations for this activity include (1) the publication of the Surgeon General's Reports on Smoking and Health (1964, 1979) presenting the health hazards of smoking, (2) the large number of smokers in the United States, and other countries and (3) the desire of many of these smokers to quit. Unfortunately, a study of the smoking cessation literature is uniformly disappointing. It has been estimated the relapse rate in smoking behavior modification programs to be about 70-80 percent during the first three months following treatment.

A variety of behavior modification techniques have been employed in the treatment of smoking behavior, all with a limited degree of success. One set of techniques used extensively has been aversive methods which include electric shock, excessive cigarette smoking, and covert sensitization.

Another set of techniques used extensively in the smoking cessation literature has been various self-control strategies. These techniques include stimulus control methods, contingency contracting, and cognitive control.

The smoking cessation strategies discussed above have shown varying degrees of short-term success, but minimal long-term success It has been suggested that such techniuqes might be more effective if used in combination. Presently, the employment of multiple-treatment programs appears to be the state of the art.

The vast majority of the smoking cessation literature is characterized by effective short-term treatment programs with a dearth of procedures employed to maintain the initial smoking abstinence. Therefore, short-term success rates are usually quite high while follow-up data are often disappointing. I feel that out failure has been in the development of an effective technology for the long-term maintenance of non-smoking behavior. Thus, one aim of the present study was to examine the efficacy of continued subject contact in the maintenance of non-smoking behavior.

The purpose of the present study was to generate data on the effectiveness of a multiple treatment program and the usefulness of three types of maintenance procedures. This information can be used to improve the efficacy of existing smoking cessation programs by developing a novel combination of treatment methods to help smokers quit smoking and a series of maintenance procedures to help ex-smokers remain ex-smokers.

This paper will address itself to two principle questions:

1. To what extent was a specified five-day smoking cessation program effective in helping people quit smoking?
2. Which, if any, of the following maintenance procedures was most effective in helping ex-smokers remain ex-smokers?
    A. Support group meetings
    B. Telephone contact system
    C. No contact control group

Methodology

Subjects. 51 subjects participated in the U-M Smoking Cessation Research Project. Twenty-nine of the subjects were women and twenty-two were men. The mean age for subjects was 36 years, their mean smoking rate was 29.8 cigarettes/day, and their mean number of years smoked was 17.5 years. Subjects had made an average of five previous attempts at quitting smoking.

Procedure. All subjects were required to attend an explanatory meeting and four consecutive treatment meetings that were held one week later. Meetings lasted approximately 1 1/2 hours. All participants were involved in treatment as a group of 51 people. At the end of treatment, subjects were blocked according to the number of cigarettes they smoked per day and their sex and were randomly assigned to one of the three maintenance conditions previously mentioned. Each maintenance condition contained 17 subjects. Data Collection involved the sending and returning of the two-month follow-up form and follow-up telephone calls at four months and six months.

Explanatory Meeting - Phase I (Introduction)

All potential subjects attended one of two explanatory meetings that were held on two consecutive evenings, the week prior to Phase II. Before the start of the meeting, all sujbects filled out a pre-treatment questionnaire. At this meeting the experimenter talked about his own difficulties as a smoker and in becoming a non-smoker and he described what the project involved. Subjects were asked to pay a $25.00 non-returnable commitment fee and were told they would be required to pay an additional $30.00 deposit that would be returned to them in full, when they completed and returned various follow-up

forms.

Participants were given an introductory packet of materials that contained the "Quitters Countdown" booklet. This described a series of assignments that the person was to carry out for five days prior to the first meeting of Phase II. The rationale for these assignments was to prepare the subject for their "quit day," which was at the termination of the initial meeting of Phase II.

Treatment - Phase II. Time does not permit a detailed explanation of the intervention strategies that were utilized. The project focused on teaching subjects the necessary skills on how to quit smoking and remain abstinent. This drew upon some well-known behavior modification concepts such as stimulus control, behavioral rehearsal, mental imagery, cognitive coping, relaxation traning, incompatible behavior, environmental support, eating management, and contingency contracting. These skills were presented uniquely in the form of assignment sheets that comprised a 60-page program manual.

The project also employed a novel aversive smoking procedure that avoids the dangers associated with rapid smoking, blowing warm, smokey air, and electric shock. It consists of having subjects smoke cigarettes in various manners that highlight the negativity of cigarette smoking. Subjects (1) view a slide show that shows both positive and negative aspects of smoking, (2) flick their ashes in ashtrays filled with cigarette litter, (3) hold their cigarettes in unpleasant manners, (4) smoke chemically treated cigarettes, (5) puff on the cigarettes - not inhale them which causes an accumulation of bitter-tasting nicotine in the mouth, and (6) listen to aversive white moise.

Maintenance Methods - Phase III. At the end of the last meeting, subjects were assigned to one of the three maintenance conditions, subjects also reveived,

Group A - Support Group. The experimenter acted as facilitator for this group. Subjects met once a week for four consecutive weeks for one hour per meeting. The group was loosely run and served to allow subjects to express feelings about their efforts to remain abstinent from cigarettes. Subjects also received a series of maintenance messages developed by the American Health Foundation (Dubren, 1977). Subjects were told to read a new daily message each day for the next 20 days.

Group B - Telephone Contact System. Subjects were divided into three groups of four people each and one group of five. They exchanged names, telephone numbers, and "good times to be reached" with their fellow group members. A different contact leader was chosen each week, for the four weeks. The leader's role was to: (1) call each group member at least two times during the week, and (2) ask them several specific questions. This group also received the same series of maintenance messages as Group A.

Group C - No Contact Control Group. This group received only the series of maintenance messages. They were told that they has learned the skills necessary to remain non-smokers, and, like the other groups, were reminded that they would be receiving a follow-up form in two months.

Results

At the termination of Phase II, 100 percent of the 51 subjects reported total abstinence. This result compares favorably to the review of cessation studies by Schwartz who estimated post-treatment success rates to be between 65 and 75 percent.

At the two-month follow-up evaluation, 84 percent (43) of the subjects reported that they had remained abstinent. This result compares favorably with Hunt and Bespalec's (1974) review of the literature which showed a 20-30 percent abstinence rate at three months post-treatment. At the four-month follow-up, one more subject had returned to smoking, leaving 82 percent of the subjects abstinent. At the six month follow-up period 12 subjects reported being a smoker, leaving an abstinence percentage of 76.5. The twelve subjects who retruned to smoking were somewhat equally divided among the three maintenance groups: 4 recidivists were from the support group, 2 were from the control group, and 6 were from the telephone contact system. A chisquare analysis revealed no significant differences among groups in the number of recidivists.

Responses from abstainers and recidivists were analyzed separatly on the two-month Follow-up Questionnaire. In giving ratings of comfort as a non-smoker, 97.7 percent of those abstinent reported being either extremely comfortable, comfortable, or somewhat comfortable as a non-smoker. In responding to their degree of desire for a cigarette, 95.2 percent of the abstainers showed either no desire for a cigarette, a very small desire for a cigarette, or some desire for a cigarette. One hundred percent of the abstainers reported that they could either control or totally control their urges. As to the degree of difficulty in quitting, 39.5 percent of those abstinent found the quitting process to be easy or very easy.

An analysis of changes in weight after two months for all 51 subjects showed that 28 gained weight, four lost weight, and 19 remained the same weight. The mean weight change for all subjects was an increase of 4.69 pounds.

Discussion

The most significant finding of this study was the extremely high abstinence rates resulting from the intervention strategies. The 100 percent abstinence rate post-treatment and the 76 5 percent abstinence rate at the six-month follow-up appear to be superior to the majority of results shown in the entire smoking cessation literature.

The results are even more encouraging in light of the fact that at two months 39.5 percent of the abstainers found the quitting experience to be easy or very easy. One of the troubles with previous smoking cessation strategies was that participants experienced a great deal of difficulty in quitting and many would return to smoking to alleviate smoking withdrawal discomforts. This difficulty also tended to discourage subsequent quitting attempts because the smoker wanted to avoid further "suffering." A smoking cessation program that can not only effectively help participants quit smoking, but can also make it an easy experience in the process is truly at an advantage.

To pinpoint the critical elements of the study that led to its high efficacy, I cite several factors: (1) The multiple treatment approach appeared to combine a proper combination of aversive and self-control techniques that are helpful to smokers. It substantiated previous research that has shown aversion methods to be the most effective. (2) Emphasis was placed on the maintenance of non-smoking behavior. In addition to the three maintenance conditions, the use of the maintenance messages and self-control maintenance techniques appear to be important. (3) The experimenter (D.P.) was a former two-pack-a-day smoker with whom the subjects seemed able to identify.

Data on the percentage of women abstainers (76 percent) versus the percentage of men abstainers (77 percent) are interesting. Unlike reports from other cessation studies the present study appears to present a smoking cessation program that shows no sex differences.

The information generated about weight change is also important. Many potential ex-smokers will not attempt to quit because of fear of weight gain. They do not want to replace one bad habit with another bad one. At two months the 43 abstainers gained an average of 4.69 pounds. Various built-in weight control features of the program may explain this statistic.

The high abstinence rates demonstrated by the study must in part be attributed to the emphasis on maintenance procedures. The success was so great across all three groups, however, that evidence cannot be provided to support the use of one maintenance procedure over another. Future studies should compare support groups, telephone contact systems, no contact controls, maintenance messages, and self-control maintenance techniques, to determine which procedures together or alone prove to be the most effective. Novel maintenance procedures such as experimenter telephone calls, mailings, negative smoking booster sessions, a buddy system, and subject-organized discussion sessions could all be explored.

Another reason for the high success rates of this study relates to the multiple treatment dimension. Subjects were taught a large number of techniques designed to prevent and eliminate urges; more than has previously appeared in the existing literature. The methods that worked best for one person were not necessarily those that worked best for another. The subjects who learned many cessation procedures could then select methods most effective

for their particular needs, based upon their personality characteristics and the type of smoker they might be. Since the smoking cessation research, as yet, has not been able to tailor treatment programs to individuals, this type of multiple treatment approach appears to be appropriate.

In summary, this study accomplished its goals of (1) assessing the efficacy of a five-day smoking cessation program, (2) generating some commonalities in the circumstances attending a return to smoking, and (3) analyzing which of the three maintenance procedures was most effective. It appears that a sophisticated, yet effective smoking cessation program has been designed and employed. But until we as researchers can consistently demonstrate the high success rates shown by this study, we have a while to go before we can collectively say "we've kicked the habit."